Nonflammable Ration Heater (NRH)

Overview:

The **Nonflammable Ration Heater (NRH)** has been developed through a Small Business Innovative Research (SBIR) project as an alternative heater for the Meal, Ready-to-Eat (MRE). The NRH SBIR project received a 1997 SBIR Phase II Quality Award. This award is given to commemorate originality and innovation, relevance to the Army and immediacy of commercial potential. The new heater is intended to replace the current Flameless Ration Heater (FRH) which contains magnesium and produces flammable hydrogen gas during use. The presence of hydrogen results in the FRH being classified as a "Dangerous When Wet Material," which necessitates restrictions on its transportation, storage, and potentially its disposal. A production capability for the new heater and an integrated heating package are currently being pursued through an Operating and Support Cost Reduction (OSCR) and SBIR Phase III programs. This new heater is expected to be available to the Services for procurement in FY00.

Description:

The new NRH consists of anhydride powders that provide two sources of heat when activated with water, the first from hydration and the second from neutralization. Therefore, the heater is both self-neutralizing and fail-safe. Requiring just one ounce of water and weighing less than two ounces, this new heater generates no gaseous by-products and can be used in any environment. With the development of this innovative heater, all hazards associated with hydrogen are eliminated while providing a safe, affordable, effective heater capable of unrestricted operation, transportation and storage.

The end products of the heater are also non-hazardous and are environmentally safe for disposal. The NRH also has the ability to consume excess water, which significantly reduces the hazards associated with residual water after use. In addition to the safety benefits that the new NRH confers, there will also be significant economic benefits. It is projected to cost about 10 cents less than the FRH. Approximately 30 million FRHs are purchased every year, and although that number is expected to decrease, the savings will be several million dollars a year.

The NRH also expands the possibility to explore the enormous commercial potential of self-heated meals, a potential that could not be realized by the FRH because of the presence of hydrogen. Among the possible commercial applications are self-heated meals for commuters, hikers, construction workers, outdoor enthusiasts, and others who often eat on the go.

Point of Contact:

Peter Lavigne, DSN 256-4939, COMM (508) 233-4939

U.S. Army
Soldier and Biological Chemical Command

Soldier Systems Center
Kansas Street
Natick, Massachusetts
01760
www.sbccom.army.mil

rev 8-23-99